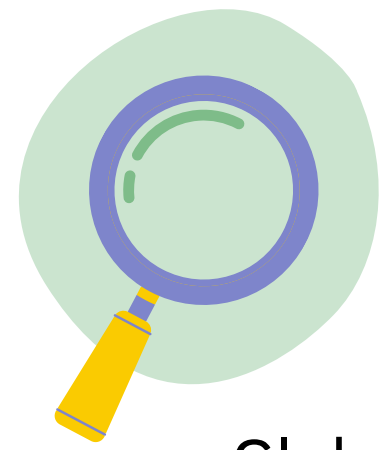




CLIMATE CHANGE AND IMPLICIT ATTITUDES: towards a new eye-tracking-based measure

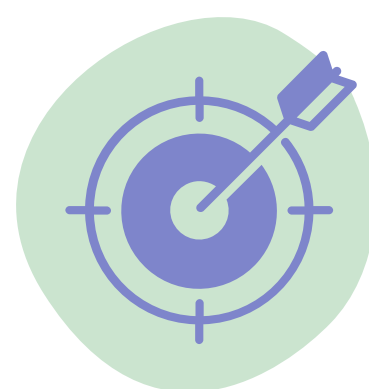
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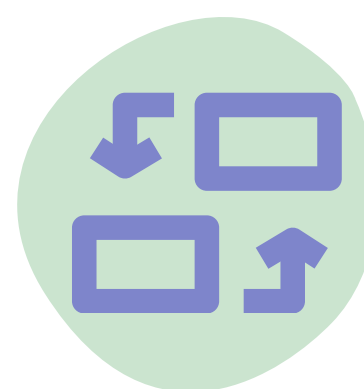
INTRODUCTION

Global environmental concerns affecting our planet require immediate action (IPCC, 2018). To better understand the psychological dynamics underlying the adoption of pro-environmental behaviors, research increasingly directed its attention to the implicit (unconscious) psychological antecedents (attitudes) of the adoption of sustainable behaviors against climate change (Hofmann et al., 2005).

AIM

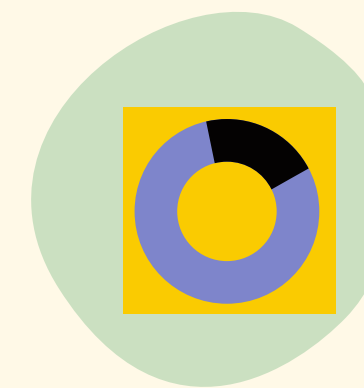


The aims of this work was to find a methodology for investigating implicit attitudes. In particular, to make a longitudinal, ecological and non-invasive assessment of implicit attitudes towards climate change, using eye-tracking technology as a substitute for the classical assessment of implicit attitudes (IAT).



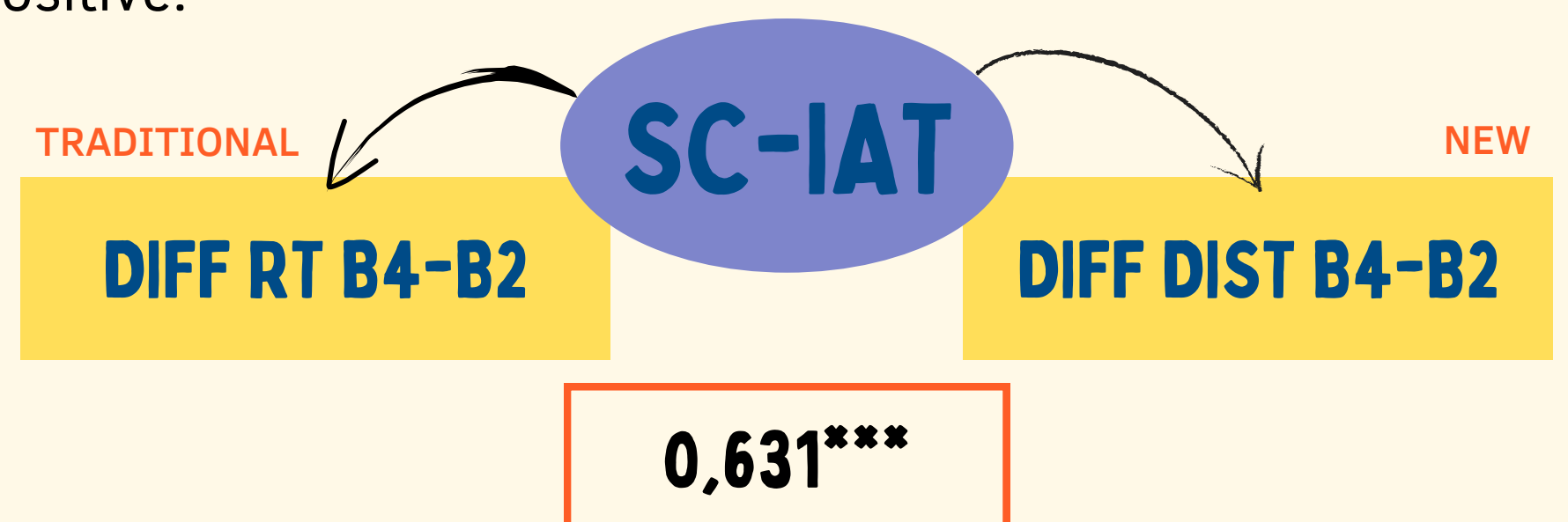
METHOD

To achieve the research objective, we conducted a strict experimental protocol. We conducted a voluntary and anonymous census, through posting on social network and mailing list at biomedical engineering laboratory. The preliminary sample consisting of only 24 subjects. The majority of the sample was female. with an average age of 24 years old. Data were collected by conducting a SC-IAT test to analyze implicit attitudes, during which eye movements were recorded, followed by the administration of a survey to assessed explicit attitudes. This trial started in May 2022 and ended in July 2022. In this research, Implicit attitudes were assessed using a short version of the traditional Implicit Association Test (IAT; Greenwald et al., 1998). The SC-IAT test was divided into four blocks (1 and 3 were trial block), preceded by eye tracking calibration. In the various blocks, a set of words were presented to be classified into groups, this task required the ability to classify as quickly as possible. For the Eye-tracking detection, we used a software called W.A.F.E.R, an acronym for Web Agile Fatigue and Emotion Recognition, which consists of an online tool capable of recognising facial expressions and eye movements. We also assessed explicit attitudes with a set of validate scientific tools.



RESULTS

The correlations between the alternative to the classic D-score, as an indicator of implicit attitudes, and all other eye-tracking-based measures assessed with W.A.F.E.R. were all positive and significative. The correlation between the 'classic' D-score, calculated with difference in the average reaction times between the Block 4 (climate change does not exist) and Block 2 (climate change exist), and the 'new' indicator given by the difference in the average gaze distance run between Block 4 and Block 2, is strong and positive.



Regarding eye-tracking and D-score correlation ($r=0,591^{***}$), we can see an increase in the discontinuity of the visual analysis in block 4 of the SC-IAT test, where the experimental subjects had to classify words according to the non-existent climate change (CC) scheme. Discontinuity appears to be related to the pattern of climate change internalised by the subject.

CONCLUSIONS

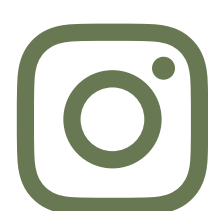


The assumption is that these dimensions appear to be related to underlying processes involving attentive and cognitive dynamics. These dynamics would underlie the processes that lead to a particular response on the SC-IAT. We can preliminary assume that the correlation with the D-score allows Eye-tracking to be used as a predictor of implicit attitudes as a substitute for the SC-IAT, in order to obtain more ecological, longitudinal and non-invasive assessments.

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